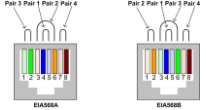# Specifications

Environment	HDMI 2.0 (RX) and HDMI 1.3a (TX)
Devices	Blu-Ray, Set Top Boxes, Media Players/Streamers, projectors, monitors, TVs, PCs, supporting HDMI.
Signal Protocal/Standard	HDMI 2.0 and HDCP 2.2 (RX) / HDMI 1.3a and HDCP 1.4 (TX)
Video Bandwidth	148.5MHz (TX), and 594MHz (RX)
Network Bandwidth	32Mbps (max)
Latency	<200ms (in low latency mode with H.265)
Protocols	TX: Supports Multicast, RTSP, RTMP (H.264), HLS, FLV (H.264) & TS RX: Supports Multicast, RTSP, RTMP, HLS, FLV & TS
Connectors	One (1) HDMI connector for AV (input on TX & output on RX). One (1) RJ45S for Ethernet connection (on TX & RX). One (1) USB 3.0 connector for future capabilities (on RX). One (1) TosLink optical connector for digital audio extraction (on RX). One (1) 3.5mm connector for audio embedding/extraction (input on TX & output on RX). One (1) 3.5mm connector for directional IR (on TX & RX, direction controlled via software). One (1) RS232 DB9 connector for controlling end devices (on TX and RX). One (1) 2.1mm locking power connector (on TX and RX).

Cables
 	
 Note: Cables not included.
	One (1) Cat 5e/6 or better twisted pair cables required for Ethernet (on TX and RX).
	 One (1) HDMI cable for connecting to source (on TX) or sink (on RX) devices.
	 Optional:
	    One (1) 3,5mm 2CH audio cable for embedding (on TX) / extracting (on RX) audio
	    One (1) RS232 cable for end device control (on TX and RX).
	    One (1) optical cable for digital audio extraction (on RX).

Maximum Distance	Cat5e/6: 330ft (100m) from Ethernet Switch. The unit can extend over the Internet for unlimited distance. *Note: When installed in an electrically noisy environment, an STP cable must be used. Also, cross-connection reduces the effective distance depending on the grade of twisted cable used.*
RJ45 Pin Configuration *Reverse Polarity Sensitive. Use EIA/TIA 568A or 586B straight-through wiring.*	**RJ45 Link** Pin 1 (R) Pin 2 (T) Pin 3 (R) Pin 6 (T) Pin 4 (R) Pin 5 (T) Pin 7 (R) Pin 8 (T)
Power Source	This device supports PoE (PD), an external power supply is not included. It is intended to be powered via a PoE (PSE) Ethernet Switch. If required, an optional power supply (500993) may be purchased separately.
PoE	IEEE 802.3af
Power Consumption	4.5W
Temperature	Operating: 0° to 40°C Storage: -20° to 85°C Humidity: Up to 95% non-condensing
Dimensions	4.4" x 3.6" x 1.0" (111mm x 92mm x 25mm)
Weight	0.9lbs (0.4kg)
Compliance	Regulatory: FCC, CE, RoHS Flammability: 94V0
Warranty	3 years
Order Information	500762-TX HDMI over IP H.264/H.265 PoE Transmitter 500762-RX HDMI over IP H.264/H.265 PoE Receiver, 4K/60
Accessories (These items are sold separately)	500920 16-Port Rackmount Transceiver Chassis 500917 Wall Mount Transceiver Bracket Kit 500990 IR Emitter, and 500994 IR Sensor 500993 Univ. Locking Power Supply 5VDC/2.6A US/UK/EU Blade

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HDMI over IP H.264/H.265 PoE Transmitter (500762-TX)

HDMI over IP H.264/H.265 PoE Receiver, 4K/60 (500762-RX)

Quick Installation Guide

Overview
The HDMI over IP H.264/H.265 PoE Transmitter (500762-TX), and the HDMI over IP H.264/H.265 PoE Receiver, 4K/60 (500762-RX) combination allows HDMI source and display equipment to be extended locally up to 330ft. (100m) at up to 4K @ 60Hz resolution via one (1) Cat5e/6 unshielded twisted pair cable in a point-to-point configuration. Point-to-multipoint and multipoint-to-multipoint is possible by connecting several Transmitters and Receivers to the same local Ethernet network, and the device support Video Wall and Multiview capabilities. The exceptionally low bandwidth requirements of this device combination allows for streaming audio/video content over a local network, over WiFi, and over the Internet for distributed installations spread-out throughout the globe. The transmitter accepts a 1080p @ 60Hz video and streams the content to the Receiver, where the signal is up-scaled up to 4K @ 60Hz to be displayed on a 4K monitor. The Receiver also accepts H.264/H.265 video streams from other transmitting devices of up to 4K @ 60Hz (4:4:4).

The Transmitter (500762-TX) and Receiver (500762-RX) are sold separately, and support PoE (PD) if used with a PoE (PSE) Ethernet Switch. The 500762-TX comes with one (1) Transmitter, while the 500762-RX comes with one (1) Receiver. IR Emitter and IR Sensor, if required, may be purchased separately for IR based remote control applications.

For the point-to-multipoint and multipoint-to-multipoint configurations the Ethernet Switch must have Gigabit ports, DHCP Server capability and additionally support the IGMP communication protocol for the multipoint-to-multipoint case. MuxLab recommends using the Cisco SG300 Series Managed Switches.

The MuxLab ProDigital Network Controller (500811) and MuxLab Control Smartphone & Tablet App is available to simplify the configuration and utilization of the 500762 and other MuxLab Av over IP products.

Applications
Applications include Audio/Video streaming over LAN/WiFi/Internet, commercial and residential AV systems, classroom projector systems, digital signage, boardroom systems, and medical information systems.

Installation

1. Identify the connectors on the Transmitter and Receiver as indicated on the product labels, see

the above front and rear product views for further details.

2. Verify that the distance between the HDMI Transmitter and Receiver is within MuxLab specifications (see Specifications table for further details).

3. To install the Transmitter:

   3a. Connect the Transmitter to the HDMI video source with an HDMI compliant cable.

   3b. If the application is point-to-point, then connect one (1) length of Cat5e/6 (or higher) grade UTP cable to the RJ45 LINK connector on the Transmitter. If transmitting over the network, use an Ethernet Switch between the TX & RX unit

4. To install the Receiver:

   4a. Connect the Receiver to the HDMI display equipment with an HDMI compliant cable.

   4b. If the application is point-to-point, then connect one (1) Cat5e/6 cable coming from the Transmitter, to the RJ45 LINK connector on the Receiver. If transmitting over the network, use an Ethernet Switch between the TX & RX unit

5. If the configuration is a point-to-multipoint or multipoint-to-multipoint:

   5a. You will need to use an Ethernet Switch with Gigabit ports and DHCP Server support. In addition IGMP Protocol support is required for the multipoint-to-multipoint case. **Verify that the Ethernet Switch is configured correctly, that the DHCP Server is enabled, and that the IGMP Protocol is enabled for multipoint-to-multipoint applications**. See the operating manual for more information about configuring the Ethernet Switch.

   5b. Connect all Transmitters and Receivers to the Ethernet Switch.

   5c. Use the DIP Switches to select a unique Device ID for each Transmitter present on the network and configure each Receiver Device ID to the corresponding selected Transmitter. **Note: This step is not necessary if the MuxLab ProDigital Network Controller (500811) is used.**

6. Powering the Transmitter or Receiver via an external power supply is only necessary where PoE (PSE) is unavailable. If PoE is unavailable, connect a 5 VDC power supply (500993 – sold separately) to each Receiver and to an AC power outlet. Next connect each Transmitter in the same manner. If power is present, the green power LED on each Transmitter and Receiver will illuminate.

   Note: Power 'ON' the HDMI Transmitter and Receiver only after all connections have been made.

7. Power 'ON' the HDMI equipment and verify the image quality.

8. This product supports IR control. IR Emitter and Sensor are not included, and are sold separately. If infrared remote control is needed to control the Source equipment from the Display, connect the IR Sensor (PN: 500994) to the 3.5mm Stereo Jack of the receiver and the IR Emitter (PN: 500998) to the 3.5mm Mono Jack of the Transmitter.

   Note: You can differentiate the IR Sensor and the IR Emitter by looking at the 3.5 mm plug. The IR Sensor is using a Stereo Plug (3 Contacts) and the IR Emitter a mono plug (2 Contacts).

9. Position the IR Sensor so that it is directed at the hand-held remote control. For a clear IR signal reception, aim the hand-held remote control at the top of the IR Sensor enclosure.

10. Position the IR Emitter as close as possible to the source's IR Sensor (i.e. Blu-Ray player). For a clear IR signal reception, the IR Emitter can be glued on the source's IR Sensor. The IR Emitter's signal is transmitted from the side of the enclosure.

11. This product supports RS232 bidirectional communication. On the Transmitter, the RS232 port is configured as a DCE; and on the Receiver as a DTE. Please connect your RS232 cable accordingly. The default settings are 115.2K, N, 8, 1.

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12. The following diagram illustrates a typical configuration.

13. This unit supports a Factory Reset function, if ever required. Note however that and saved unit configuration data will be lost. To perform a Factory Reset, press and hold the reset button located on the front between 6 to 10 seconds, until the LED starts to flash. If you just want to reset (reboot) the unit, then simply momentarily press the reset button for 1 second.
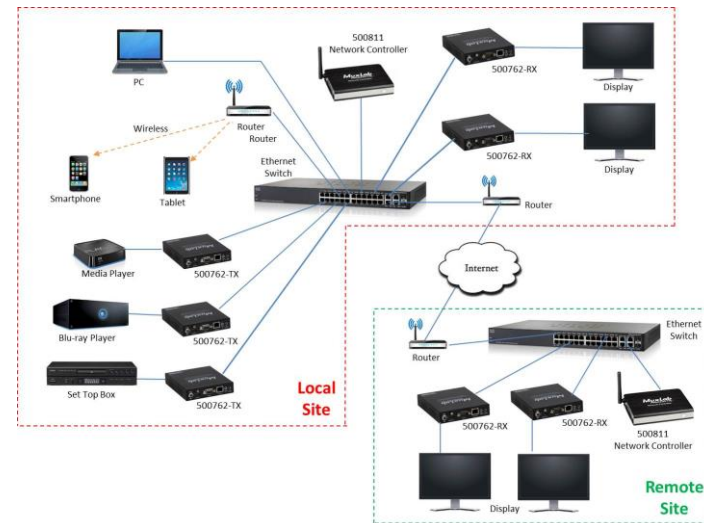
Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in regard to the installation of the HDMI over IP H.264/H.265 PoE Transmitter and Receiver:

Symptom	Transmitter LEDs		Receiver LEDs		Probable Cause	Possible Solutions
	Power	Link	Power	Link		
No Image	OFF	OFF	OFF	OFF	No power	• Check power connections • Check PoE Ethernet Switch Setup
No Image	BLINK	OFF	BLINK	ON	Booting	• Wait until booting process is finished
No Image	ON	OFF	ON	OFF	No Ethernet Link	• Check Ethernet Switch Status • Check UTP Cables
Info Screen	ON	OFF	ON	BLINK	UTP Cable	• Check the Transmitter UTP cable
Info Screen	ON	ON	ON	OFF	UTP Cable	• Check the Receiver UTP cable.
Info Screen	ON	BLINK	ON	BLINK	No Data Connection	• Check if DIP Switch settings match
Info Screen	ON	ON	ON	BLINK	Wrong setting on Receiver	• Check DIP Switch address of the Receiver
Choppy Video	ON	ON	ON	ON	Configuration	• Check cable length • Check the HDMI Cable Quality • Check if IGMP is enabled on the Ethernet Switch
Image flickers when powering up nearby equipment	ON	ON	ON	ON	Interference	• Use STP cables
IR not functioning *	ON	ON	ON	ON	Interference from sunlight, Fluorescent, Neon or Halogen lights	• Place the IR equipment away for the interfering light
IR not functioning *	ON	ON	ON	ON	Interference from RF radiation from the TV	• Place the IR equipment away for the RF radiation

* IR Emitter and IR Sensor sold separately.

If you still cannot diagnose the problem, please call MuxLab Customer Technical Support at 877-689-5228 (toll-free in North America) or (+1) 514-905-0588 (International).